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NUTTER MCCLENNEN & FISH LLP
WORLD TRADE CENTER WEST
155 SEAPORT BOULEVARD
BOSTON, MA 02210-2604

EXAMINER	
RYMAN, DANIEL J	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/616,477	Applicant(s) NOEL ET AL.	
	Examiner Daniel J. Ryman	Art Unit 2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 July 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 November 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2 and 3*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 12/4/2000 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Drawings

2. The drawings are objected to because on page 15, lines 23-24 the labels of MPLS application and IP application do not match the labels of these items in Fig. 3. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The abstract of the disclosure is objected to because it exceeds 150 words in length. Correction is required. See MPEP § 608.01(b).

4. The disclosure is objected to because of the following informalities: on page 7, line 18 "Sending sending a copy" should be "Sending a copy". On page 15, lines 23-24 "each MPLS application 341a-341n and each IP application 342a-342n" should be "each IP application 341a-341n and each MPLS application 342a-342n" in order to match with Fig. 3.

Appropriate correction is required.

5. Examiner requests that Applicant include on page 1, lines 1-3 an Application number in addition to updating the status of the application to reflect any changes.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claim 43 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 43 discloses that the transmitter of the upper layer subsystem and the working port are connected and that the receiver of the upper layer subsystem and the test port are connected. Communication should not be possible if two receivers are tied together and two transmitters are tied together since a transmitter should be coupled with a receiver. Examiner will interpret "programming a cross-connection subsystem to provide connections between a transmitter of the upper layer subsystem and a transmitter of the working port and between a receiver of the upper layer subsystem and a receiver of the test port" to be "programming a cross-connection subsystem to provide connections between a receiver of the upper layer subsystem and a transmitter of the working port and between a transmitter of the upper layer subsystem and a receiver of the test port".

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 10 and 34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10. Claim 10 recites the limitation "the portion of the network data" in line 1. There is insufficient antecedent basis for this limitation in the claim. Claim 10 depends upon claims 1 and 2. In claims 1 and 2 the data is referred to as "the network data". For the purposes of prior art rejections, Examiner will interpret "the portion of the network data" to be "a portion of the network data".

11. Claim 34 recites the limitation "the cross-connection card" in line 1. There is insufficient antecedent basis for this limitation in the claim. Claim 34 depends upon claim 31. In claims 31 the cross-connection mechanism is referred to as "the cross-connection subsystem". For the purposes of prior art rejections, Examiner will interpret "the cross-connection card" to be "the cross-connection subsystem".

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

13. Claims 1, 2, 10-15, 17, 18, 22, 26-29, 31, 32, 34-45, 47-49, and 51-53 are rejected under 35 U.S.C. 102(e) as being anticipated by Ramakrishnan (PGPub 2003/0012196).

14. Regarding claim 1, Ramakrishnan discloses a network device, comprising: a physical layer subsystem for transferring network data in accordance with a physical layer protocol and including a physical layer working port (ref. 201-203 and 221-223) capable of being connected to a first physical network attachment (paragraphs 9-10 and 24-27); an upper layer subsystem for transferring the network data in accordance with an upper layer protocol and coupled with the physical layer subsystem (paragraphs 9-10, 20-22, 24-27, and 31); and wherein the physical layer subsystem further includes a physical layer test port (monitor port) coupled to the physical layer subsystem and the upper layer subsystem and capable of being connected to a second physical network attachment (ref. 230) (paragraphs 9-10 and 24-27).

15. Regarding claim 2, referring to claim 1, Ramakrishnan discloses that the physical layer subsystem further comprises: a cross-connection subsystem (ref. 210) for transferring the network data between the physical layer working port and the upper layer subsystem and multicasting a portion of the network data to the physical layer test port (paragraphs 9-10, 24-27, and 31).

16. Regarding claim 10, referring to claim 2, Ramakrishnan discloses that a portion of the network data comprises a received portion of the network data (received packet) (paragraphs 9-10, 24-27, and 31).

17. Regarding claim 11, referring to claim 10, Ramakrishnan discloses that the received portion of the network data comprises at least one path (paragraphs 9-10, 20-22, 24-27, and 31).

18. Regarding claim 12, referring to claim 2, Ramakrishnan discloses that the portion of the network data comprises a transmit portion of the network data (transmitted packet) (paragraphs 9-10, 24-27, 30, and 31).

19. Regarding claim 13, referring to claim 12, Ramakrishnan discloses that the transmit portion of the network data comprises at least one path (paragraphs 9-10, 20-22, 24-27, 30, and 31).

20. Regarding claim 14, referring to claim 2, Ramakrishnan discloses that the physical layer test port is a first physical layer test port and the physical layer subsystem further comprises: a second physical layer test port coupled to the physical layer subsystem and the upper layer subsystem and capable of being connected to a third physical network attachment (ref. 230) (paragraphs 9-10 and 28-32).

21. Regarding claim 15, referring to claim 14, Ramakrishnan discloses that the cross-connection subsystem is further capable of multicasting another portion of the network data to the second physical layer test port (paragraphs 9-10 and 24-32).

22. Regarding claim 17, referring to claim 1, Ramakrishnan discloses that the physical layer working port is a first physical layer working port (paragraphs 9-10 and 24-32) and wherein the physical layer subsystem further includes: a second physical layer working port capable of being connected to a third physical network attachment (paragraphs 9-10 and 24-32); and wherein the network device further includes: a cross-connection subsystem for transferring the network data between the first and second physical layer working ports and the upper layer subsystem and for multicasting a first portion of the network data transferred between the first physical layer working port and the upper layer subsystem to the physical layer test port (paragraphs 9-10 and 24-32) and for multicasting a second portion of the network data transferred between the second physical layer working port and the upper layer subsystem to the physical layer test port (paragraphs 9-10 and 24-32).

23. Regarding claim 18, referring to claim 1, Ramakrishnan discloses that the first physical network attachment comprises an input optical fiber and an output optical fiber (paragraphs 4-5, 9-10, 20-22, 24-27, and 31) where Ramakrishnan discloses that the invention is useful in optical networks.

24. Regarding claim 22, referring to claim 1, Ramakrishnan discloses that the upper layer protocol comprises ATM (paragraphs 21-22).

25. Regarding claim 26, Ramakrishnan discloses a network device, comprising: an upper layer subsystem for transferring network data in accordance with an upper layer protocol (paragraphs 9-10, 20-22, 24-27, and 31); and a physical layer subsystem for transferring the network data with the upper layer subsystem and including a plurality of ports (ref. 201-203 and 221-223) capable of being connected to physical network attachments (paragraphs 9-10 and 24-27), wherein the plurality of ports are capable of being programmed as physical layer test ports (paragraphs 27-32).

26. Regarding claim 27, referring to claim 26, Ramakrishnan discloses that one of the plurality of ports is designated as a working port and one of the plurality of ports is designated as a test port (paragraphs 9-10, 24-27, and 31) and the physical layer subsystem further includes: a cross-connection subsystem for transferring the network data between the upper layer subsystem and the working port and for multicasting a portion of the network data to the test port (paragraphs 9-10 and 24-31).

27. Regarding claim 28, referring to claim 27, Ramakrishnan discloses that the test port is a first test port and another one of the plurality of ports is designated as a second test port and

wherein the cross-connection subsystem is capable of multicasting another portion of the network data to the second test port (paragraphs 9-10 and 24-31).

28. Regarding claim 29, referring to claim 27, Ramakrishnan discloses that the working port is a first working port and another one of the plurality of ports is designated as a second working port and wherein the cross-connection subsystem is capable of transferring the network data between the upper layer subsystem and the first and second working ports and for multicasting a first portion of the network data transferred between the upper layer subsystem and the first working port to the test port and a second portion of the network data transferred between the upper layer subsystem and the second working port to the test port (paragraphs 9-10 and 24-31).

29. Regarding claim 31, Ramakrishnan discloses a network device, comprising: an upper layer subsystem for transferring network data in accordance with an upper layer protocol (paragraphs 9-10, 20-22, 24-27, and 31); a physical layer subsystem including a plurality of ports capable of being connected to physical network attachments (paragraphs 9-10, 24-27, and 31), wherein the plurality of ports include a working port and a test port (paragraphs 9-10, 20-22, 24-27, and 31); and a cross-connection subsystem coupled to the upper layer subsystem and the physical layer subsystem and capable of being programmed to transfer the network data between the upper layer subsystem and the working port and to multicast a portion of the network data to the test port (paragraphs 9-10 and 24-32).

30. Regarding claim 32, referring to claim 31, Ramakrishnan discloses that the test port is a first test port, the plurality of ports further comprises a second test port and the cross-connection subsystem is further capable of being programmed to multicast another portion of the network data to the second test port (paragraphs 9-10 and 24-32).

31. Regarding claim 34, referring to claim 31, Ramakrishnan discloses that the working port is a first working port, the plurality of ports includes a second working port and the cross-connection subsystem is further capable of being programmed to transfer the network data between the upper layer subsystem and the first and second working ports and to multicast a first portion of the network data transferred between the upper layer subsystem and the first working port to the test port and to multicast a second portion of the network data transferred between the upper layer subsystem and the second working port to the test port (paragraphs 9-10 and 24-31).

32. Regarding claim 35, Ramakrishnan discloses a method of operating a network device, comprising: transferring network data between a physical layer working port within a physical layer subsystem and a physical network attachment capable of being coupled with another network device (paragraphs 9-10, 17-20, and 24-27)); transferring network data between the working port and an upper layer subsystem (paragraphs 9-10 and 24-27); and sending a copy of a portion of the network data transferred between the working port and the upper layer subsystem to a physical layer test port (paragraphs 9-10 and 24-27).

33. Regarding claim 36, referring to claim 35, Ramakrishnan discloses sending a copy of another portion of the network data transferred between the physical layer subsystem and the upper layer subsystem to the test port (paragraphs 9-10 and 24-32).

34. Regarding claim 37, referring to claim 35, Ramakrishnan discloses sending the copy of the portion of the network data transferred between the working port and the upper layer subsystem to another test port (paragraphs 9-10 and 24-27).

35. Regarding claim 38, referring to claim 35, Ramakrishnan discloses that sending a copy of a portion of the network data transferred between the working port and the upper layer

subsystem to a physical layer test port comprises: programming a cross-connection subsystem to provide connections between the working port, the upper layer subsystem and the test port (paragraphs 9-10 and 24-32).

36. Regarding claim 39, referring to claim 38, Ramakrishnan discloses re-programming the cross-connection subsystem to provide connections between the working port, the upper layer subsystem and another test port (paragraphs 9-10 and 24-32).

37. Regarding claim 40, referring to claim 38, Ramakrishnan discloses re-programming the cross-connection subsystem to provide connections between another working port, the upper layer subsystem and the test port (paragraphs 9-10 and 24-32).

38. Regarding claim 41, referring to claim 38, Ramakrishnan discloses that sending a copy of a portion of the network data transferred between the working port and the upper layer subsystem to a physical layer test port comprises: programming a cross-connection subsystem to provide connections between the working port and the upper layer subsystem and between a receiver of the working port and the test port (paragraphs 9-10 and 24-32, esp. paragraphs 24-29).

39. Regarding claim 42, referring to claim 35, Ramakrishnan discloses that sending a copy of a portion of the network data transferred between the working port and the upper layer subsystem to a physical layer test port comprises: programming a cross-connection subsystem to provide connections between the working port and the upper layer subsystem and between a transmitter of the upper layer subsystem and the test port (paragraphs 9-10 and 24-32, esp. paragraph 30).

40. Regarding claim 43, referring to claim 35, Ramakrishnan discloses that sending a copy of a portion of the network data transferred between the working port and the upper layer subsystem to a physical layer test port comprises: programming a cross-connection subsystem to provide connections between a receiver of the upper layer subsystem and a transmitter of the working port and between a transmitter of the upper layer subsystem and a receiver of the test port (paragraphs 9-10 and 24-32).

41. Regarding claim 44, referring to claim 35, Ramakrishnan discloses that the portion of the network data comprises at least one path (paragraphs 9-10 and 24-32).

42. Regarding claim 45, Ramakrishnan discloses a network device, comprising: a plurality of ports capable of being connected to external physical network attachments (paragraphs 9-10 and 17-20) and capable of being programmed as test ports or working ports (paragraphs 24-32).

43. Regarding claim 47, referring to claim 45, Ramakrishnan discloses that at least one of the plurality of ports is programmed as a test port and at least one of the plurality of ports is programmed as a working port and the physical layer subsystem further includes: a cross-connection subsystem for multicasting network data to the test port and the working port (paragraphs 9-10 and 24-32).

44. Regarding claim 48, referring to claim 47, Ramakrishnan discloses that the test port is a first test port and another one of the plurality of ports is programmed as a second test port and wherein the cross-connection subsystem is capable of multicasting the network data to the working port, the first test port and the second test port (paragraphs 9-10 and 24-32).

45. Regarding claim 49, referring to claim 47, Ramakrishnan discloses that the working port is a first working port and another one of the plurality of ports is programmed as a second

working port and wherein the cross-connection subsystem is capable of transferring the network data between the first and second working ports and for multicasting the network data to the test port (paragraphs 9-10 and 24-32).

46. Regarding claim 51, Ramakrishnan discloses a network device, comprising: a physical layer subsystem including a plurality of ports capable of being connected to physical network attachments (paragraphs 9-10 and 17-20), wherein the plurality of ports include at least one working port and at least one test port (paragraphs 9-10 and 24-27); and a cross-connection subsystem coupled to the physical layer subsystem and capable of being programmed to transfer the network data to the working port and to the test port (paragraphs 9-10 and 24-32).

47. Regarding claim 52, Ramakrishnan discloses a network device, comprising: a physical layer subsystem including a plurality of ports (paragraphs 9-10 and 17-20); and a cross-connect subsystem coupled to the physical layer subsystem and capable of being configured to implement at least one of the plurality of ports as a working port and at least another of the plurality of ports as a test port (paragraphs 9-10 and 24-32).

48. Regarding claim 53, referring to claim 52, Ramakrishnan discloses that the cross-connect subsystem is capable of multicasting network data to the working port and the test port (paragraphs 9-10 and 24-32).

Claim Rejections - 35 USC § 103

49. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

50. Claims 3-7, 16, 19-21, 23-25, 30, 33, 46, and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramakrishnan (PGPub 2003/0012196).

51. Regarding claim 3, referring to claim 2, Ramakrishnan discloses that the cross-connection subsystem comprises a cross-connection mechanism (paragraphs 9-10, 24-27, and 31), the physical layer subsystem comprises a port including the working port and the test port (paragraphs 9-10, 24-27, and 31) and connected to the cross-connection mechanism, and the upper layer subsystem includes a forwarding mechanism connected to the cross-connection card (paragraphs 9-10, 20-22, 24-27, and 31). Ramakrishnan does not expressly disclose that the various subsystems are implemented using cards, specifically a cross-connection card, a port card, and a forwarding card; however, Examiner takes official notice that implementing a system using cards (printed circuit boards) is well known in the art since cards provide the hardware necessary to implement a component. It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the various subsystems using cards since cards provide the hardware necessary to implement a component.

52. Regarding claim 4, referring to claim 2, Ramakrishnan discloses that the cross-connection subsystem comprises a cross-connection mechanism (paragraphs 9-10, 24-27, and 31), wherein the physical layer subsystem comprises a first port including the working port and a second port including the test port (paragraphs 9-10, 24-27, and 31), wherein the first and second ports are connected to the cross-connection mechanism (paragraphs 9-10, 24-27, and 31), and the upper layer subsystem includes a forwarding mechanism connected to the cross-connection mechanism (paragraphs 9-10, 20-22, 24-27, and 31). Ramakrishnan does not expressly disclose that the various subsystems are implemented using cards, specifically a

cross-connection card, a port card, and a forwarding card; however, Examiner takes official notice that implementing a system using cards (printed circuit boards) is well known in the art since cards provide the hardware necessary to implement a component. It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the various subsystems using cards since cards provide the hardware necessary to implement a component.

53. Regarding claim 5, referring to claim 4, Ramakrishnan suggests that the first port card further includes a second test port (paragraphs 9-10 and 28-31).

54. Regarding claim 6, referring to claim 4, Ramakrishnan suggests that the second port card further includes a second test port (paragraphs 9-10 and 28-31).

55. Regarding claim 7, referring to claim 4, Ramakrishnan suggests that the physical layer subsystem further includes a third port card including a second test port and wherein the third port card is connected to the cross-connection card (paragraphs 9-10 and 28-31).

56. Regarding claim 16, referring to claim 1, Ramakrishnan discloses that the physical layer subsystem further comprises: a cross-connection subsystem for transferring the network data from the upper layer subsystem to the physical layer working port (paragraphs 9-10, 24-27, and 31) and for transferring test data to the physical layer test port from the upper layer subsystem (paragraphs 9-10, 24-27, and 31). Ramakrishnan does not disclose that the cross-connection subsystem is for transferring test data from the physical layer test port to the upper layer subsystem. Examiner takes official notice that it is well known in the art to have a monitoring unit transmit information in order to report the monitoring results to another unit. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the cross-

connection subsystem transfer test data from the physical layer test port to the upper layer subsystem in order to transmit any monitoring results to another unit.

57. Regarding claim 19, referring to claim 1, Ramakrishnan discloses that the first physical network attachment includes communication links (paragraphs 17-20). Ramakrishnan does not expressly disclose that the first physical network attachment comprises an input cable and an output cable; however, Examiner takes official notice that cables are well known physical network attachments. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the first physical network attachment comprises an input cable and an output cable since cables are well known attachments.

58. Regarding claim 20, referring to claim 1, Ramakrishnan discloses that the system can be implemented in an optical network (paragraphs 5 and 31). Ramakrishnan does not expressly disclose that the physical layer protocol comprises SONET; however, Examiner takes official notice that SONET is a well-known physical layer protocol for optical networks. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the physical layer protocol comprise SONET since SONET is a well-known physical layer protocol for optical networks.

59. Regarding claim 21, referring to claim 1, Ramakrishnan does not expressly disclose that the physical layer protocol comprises Ethernet; however, Examiner takes official notice that Ethernet is a very well known protocol. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the physical layer protocol comprise Ethernet since Ethernet is a well-known protocol.

60. Regarding claim 23, referring to claim 1, Ramakrishnan does not expressly disclose that the upper layer protocol comprises MPLS; however, Ramakrishnan does disclose using ATM as the upper layer protocol (paragraphs 21-22). Examiner takes official notice that MPLS is a well-known protocol. It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute one protocol for another well-known protocol.

61. Regarding claim 24, referring to claim 1, Ramakrishnan does not expressly disclose that the upper layer protocol comprises IP; however, Ramakrishnan does disclose using ATM as the upper layer protocol (paragraphs 21-22). Examiner takes official notice that IP is a well-known protocol. It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute one protocol for another well-known protocol.

62. Regarding claim 25, referring to claim 1, Ramakrishnan does not expressly disclose that the upper layer protocol comprises Frame Relay; however, Ramakrishnan does disclose using ATM as the upper layer protocol (paragraphs 21-22). Examiner takes official notice that Frame Relay is a well-known protocol. It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute one protocol for another well-known protocol.

63. Regarding claim 30, referring to claim 26, Ramakrishnan discloses that one of the plurality of ports is designated as a working port and one of the plurality of ports is designated as a test port (paragraphs 9-10 and 24-31) and the physical layer subsystem further includes: a cross-connection subsystem for transferring the network data from the upper layer subsystem to the working port (paragraphs 9-10 and 24-31). Ramakrishnan does not expressly disclose that the cross-connection subsystem is for transferring data from the test port to the working port. Examiner takes official notice that it is well known in the art to have a monitoring unit transmit

information in order to report the monitoring results to another unit. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the cross-connection subsystem transfer test data from the test port to the working port in order to transmit any monitoring results to another unit.

64. Regarding claim 33, referring to claim 31, Ramakrishnan discloses that the cross-connection subsystem is further capable of being programmed to send the network data from the upper layer subsystem to the working port (paragraphs 9-10 and 24-31). Ramakrishnan does not expressly disclose that the cross-connection subsystem is capable of sending test data from the test port to the upper layer subsystem. Examiner takes official notice that it is well known in the art to have a monitoring unit transmit information in order to report the monitoring results to another unit. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the cross-connection subsystem send test data from the test port to the upper layer subsystem in order to transmit any monitoring results to another unit.

65. Regarding claim 46, referring to claim 45, Ramakrishnan discloses that the system can be implemented in an optical network (paragraphs 5 and 31). Ramakrishnan does not expressly disclose that the physical layer subsystem transfers network data in accordance with SONET protocol; however, Examiner takes official notice that SONET is a well-known physical layer protocol for optical networks. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the physical layer subsystem transfer network data in accordance with SONET protocol since SONET is a well-known physical layer protocol for optical networks.

66. Regarding claim 50, referring to claim 45, Ramakrishnan discloses that at least one of the plurality of ports is programmed as a working port and at least one of the plurality of ports is programmed as a test port (paragraphs 9-10 and 24-32). Ramakrishnan does not expressly disclose that the physical layer subsystem further includes: a cross-connection subsystem for transferring the network data from the test port to the working port. Examiner takes official notice that it is well known in the art to have a monitoring unit transmit information in order to report the monitoring results to another unit. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the cross-connection subsystem transfer network data from the test port to the working port in order to transmit any monitoring results to another unit.

67. Claim 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramakrishnan (PGPub 2003/0012196) as applied to claim 2 above, and further in view of Bavant et al. (USPN 6,529,473).

68. Regarding claim 8, referring to claim 2, Ramakrishnan discloses that the cross-connection subsystem comprises a cross-connection mechanism, wherein the physical layer subsystem comprises a first port connected to the cross-connection mechanism and a second port connected to the cross-connection mechanism, and wherein the upper layer subsystem comprises a forwarding mechanism connected to the cross-connection mechanism (paragraphs 9-10 and 24-31). Ramakrishnan does not expressly disclose that the various subsystems are implemented using cards, specifically a cross-connection card, a port card, and a forwarding card; however, Examiner takes official notice that implementing a system using cards (printed circuit boards) is well known in the art since cards provide the hardware necessary to

implement a component. It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the various subsystems using cards since cards provide the hardware necessary to implement a component. Ramakrishnan does not expressly disclose that the cross-connection subsystem comprises a first cross-connection card and a second cross-connection card, wherein the physical layer subsystem comprises a first port card connected to the first cross-connection card and a second port card connected to the second cross-connection card, and wherein the upper layer subsystem comprises a first forwarding card connected to the first cross-connection card and a second forwarding card connected to the second cross-connection card. Bavant teaches, in an ATM switching system, having a first cross-connection mechanism (active mechanism) (col. 2, lines 43-59) and a second cross-connection mechanism (passive mechanism) (col. 2, lines 43-59), wherein the physical layer subsystem comprises a first port connected to the first cross-connection mechanism and a second port connected to the second cross-connection mechanism (col. 2, lines 43-59), and wherein the upper layer subsystem comprises a first forwarding mechanism (management means) connected to the first cross-connection mechanism (col. 2, lines 43-59) and a second forwarding mechanism (management means) connected to the second cross-connection mechanism (col. 2, lines 43-59) in order to ensure reliability of the system (col. 2, lines 43-59). It would have been obvious to one of ordinary skill in the art at the time of the invention to have the cross-connection subsystem comprise a first cross-connection card and a second cross-connection card, wherein the physical layer subsystem comprises a first port card connected to the first cross-connection card and a second port card connected to the second cross-connection card, and wherein the upper layer subsystem comprises a first forwarding card

connected to the first cross-connection card and a second forwarding card connected to the second cross-connection card in order to ensure reliability of the system.

69. Regarding claim 9, referring to claim 8, Ramakrishnan in view of Bavant suggests that the first and second cross-connection cards are connected and the first port card includes the working port and the second port card includes the test port (Bavant: col. 2, lines 43-59) where the two cards will include the same ports since one cards needs to take over the function of the other card upon a failure.

Conclusion

70. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Murthy et al. (USPN 6,545,982) see entire document which pertains to copying a packet received at one port and sending the copy to a monitoring port.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (703)305-6970. The examiner can normally be reached on Mon.-Fri. 7:00-5:00 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (703)308-6602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Daniel J. Ryman
Examiner
Art Unit 2665

DJR

Daniel J. Ryman

HUY D. VU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600